CLAIMS

1. An antimicrobial polymer, characterised in that it carries a covalently bound chromophoric marker.

2. An antimicrobial polymer according to claim 1 wherein the antimicrobial polymer is a cationic antimicrobial polymer.

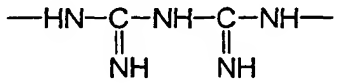
3. An antimicrobial polymer according to either claim 1 or claim 2 wherein chromophoric marker comprises a chromophoric group which has a major absorption and/or emission band in the range of from 275 to 1500 nm.

4. An antimicrobial polymer according to any one of the preceding claims wherein the chromophoric group is a fluorescent group.

5. An antimicrobial polymer according to any one of the preceding claims wherein the chromophoric marker is covalently bound to the antimicrobial polymer as a pendant group or a terminal group on the polymer chain, or as an in-chain group in the polymer chain.

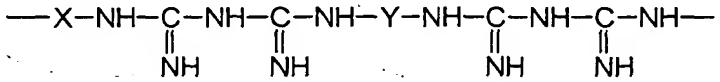
6. An antimicrobial polymer according to any one of the preceding claims wherein the chromophoric marker is present as a terminal or pendant group on the polymer chain and the antimicrobial polymer to which the chromophoric marker is bound is an antimicrobial poly(quaternary ammonium) compound, a polymeric guanide or a polymeric biguanide.

7. An antimicrobial polymer according to claim 6 wherein the antimicrobial polymer to which the chromophoric marker is bound is a polymeric biguanide which contains at least one biguanide unit of Formula (3):



Formula 3

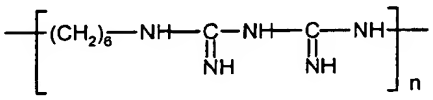
8. An antimicrobial polymer according to claim 7 wherein the polymeric biguanide is a linear polymeric biguanide which has a recurring polymeric unit represented by Formula (4):



Formula (4)

wherein X and Y may be the same or different and represent bridging groups in which, together, the total number of carbon atoms directly interposed between the pairs of nitrogen atoms linked by X and Y is not less than 9 and not greater than 17.

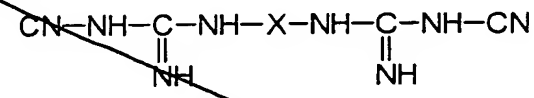
9. An antimicrobial polymer according to claim 8 wherein the polymeric biguanide is a mixture of poly(hexamethylenebiguanide) polymer chains in which the individual polymer chains, excluding the terminal groups, are represented by Formula (5) and salts thereof:



Formula (5)

wherein the value of n is from 4 to 40.

10. An antimicrobial polymer according to any one of claims 1 to 5 obtainable by co-polymerising a chromophoric marker, a bisdicyandiamide having the formula:



and a diamine H_2N-Y-NH_2, wherein X and Y are as defined in claim 8.

11. An antimicrobial polymer according to claim 10 obtainable by co-polymerising hexamethylenediamine, hexamethylene-1,6-bis dicyandiamide and a chromophoric marker.

12. An antimicrobial polymer according to any one of the preceding claims wherein the covalent bond between the chromophoric marker and polymer is formed by means of one or more reactive functional group on the chromophoric marker which is capable of forming a covalent bond with the polymer and/or monomer precursors used to make the polymer.

13. An antimicrobial polymer according to claim 12 wherein the chromophoric marker carrying the reactive functional group(s) is of the Formula (1):

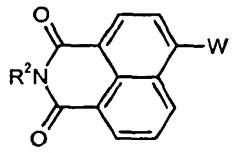
Formula (1)

wherein:

Ch	is a chromophoric group;
L	is a divalent aliphatic linking group;
X	is a reactive functional group;

	T	is -O-, -S-, -NR^1-, -$NR^1C(O)NR^1$-, -$NR^1C(S)NR^1$-, -$NR^1C(O)$-, -OC(O), =N- or -SO_2NR^1-;
	R^1	is H, optionally substituted alkyl or optionally substituted phenyl;
	m and n	independently are 0 or 1; and
	p	is 1 or 2.

14. An antimicrobial polymer according to claim 13 wherein the chromophoric marker carrying the reactive functional group(s) is of the Formula (2):



Formula (2)

wherein:

W is -NR^3R^4, -OR^5 or halogen;

R^2 , R^3 and R^5 are each, independently, alkyl optionally substituted by a reactive functional group;

R^4 is H or alkyl optionally substituted by a reactive functional group;

provided that at least one of R^2 R^3 R^4 or R^5 is substituted by a reactive functional group.

15. An antimicrobial polymer according to claim 14 wherein the chromophoric marker carrying the reactive functional group(s) is N-(6-aminohexyl)-4-(6-aminohexylamino)-1,8-naphthalimide, N-(6-aminohexyl)-4-methoxy-1,8-naphalthimide, N-(6-aminohexyl)-4-bromo-1,8-naphalthimide or N-hexyl-4-(6-aminohexyl)-1,8-naphthalimide.

16. An antimicrobial polymer according to claim 10 obtainable by co-polymerising hexamethylenediamine, hexamethylene-1,6-bis dicyandiamide and 4-bromo-1,8-naphthalic anhydride.

17. A compound of the Formula (2) as defined in claim 14.

18. A composition comprising antimicrobial polymers at least one of which is an antimicrobial polymer according to any one of claims 1 to 16.

19. A composition comprising a carrier and an antimicrobial polymer according any one of claims 1 to 16 or a composition according to claim 18.

20. A method for inhibiting microbiological growth on, or in, a medium which comprises treating the medium with an antimicrobial polymer according to any one of claims 1 to 16 or a composition according to claim 18 or claim 19.

21. A method for detecting an antimicrobial polymer according to any one of claims 1 to 18 on or in a medium comprising the steps:

(a) subjecting a sample of the medium containing an antimicrobial polymer to a detection means whereby the presence of the chromophoric marker in the antimicrobial polymer generates a detection signal; and optionally

(b) calculating the concentration of the antimicrobial polymer from the detection signal generated in step (a).

22. A method according to claim 21 wherein the detection means comprises fluorescence spectrometry, Raman spectrometry or surface enhanced resonance Raman spectrometry.

23. A method for maintaining the concentration of an antimicrobial polymer according to any one of claims 1 to 18 in a medium at or above a target concentration comprising the steps:

(a) measuring the concentration of the antimicrobial polymer in the medium using the method according to claim 21 or claim 22;

(b) comparing the measured concentration with the target concentration; and

(c) adding a sufficient quantity of further antimicrobial polymer to the medium to maintain the concentration of the antimicrobial polymer in the medium at or above the target concentration.